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Quality Improvement

Nonmedical Discharge Barriers in Prolonged Stays on a General Medicine Ward: A Retrospective Review

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Abstract

Background

Prolonged stays negatively impact patient outcomes and are costly for the healthcare system. Nonmedical barriers to discharge, such as lack of insurance or post-acute care facility acceptances, are increasingly recognized as causes of prolonged stays beyond medical necessity.

Methods

A retrospective chart review of patients admitted over a two-year period with stays beyond 30 days on a general medicine floor of an urban academic hospital was conducted. Demographic, clinical and administrative data were recorded. Barriers to discharge were characterized at days 30, 60, and 90 of admission. Nonmedical barriers were recorded for patients who stayed beyond medical readiness for discharge.

Results

Out of 2866 admissions, 101 hospitalizations (3.5%) of 97 patients were prolonged, accounting for a total of 6518 (27.2%) of 23,934 inpatient days. Of the prolonged stays, 37 stays lasted longer than 60 days and 17 lasted longer than 90 days. At lengths of stay day 30, 60, and 90, the proportion of admissions that were prolonged beyond medical necessity by nonmedical factors were 36.6%, 59.5%, and 52.9% respectively. The most common nonmedical barrier to discharge at all three timepoints was barriers to facility placement.

Conclusions

A small proportion of prolonged stay patients make up a disproportionately high number of inpatient days, with nonmedical factors contributing to more than half of cases beyond 60 days. The rising prevalence of nonmedical barriers, particularly the lack of facility acceptances, highlights the need to examine delays at the systems-level.

BACKGROUND

Prolonged stays have been viewed as measures of hospital quality of care and patient safety,[1] with stays beyond medical necessity subject to utilization review and viewed as a source of excess healthcare expenditure.[2] In the United States, stays beyond three weeks accounted for 14% of all inpatient days, costing more than $20 billion dollars annually.[2] Prolonged stays are associated with increased morbidity and mortality[3] and leave patients at increased risk for hospital-acquired complications,[4] depressed mood,[5] and anxiety.[5,6] For a small subset of patients, inpatient stays may exceed hundreds of days,[7] leaving patients chronically hospitalized and socially isolated.

While patients may remain in the hospital for prolonged periods of time due to medical complexity, a plethora of "nonmedical" reasons have been proposed for these extended admissions in recent years. These may include diverse financial, behavioral, and decision-making capacity barriers or a combination thereof that delay discharge after patients are deemed medically ready to leave the hospital.[8] Prolonged stay patients are thought to face post-acute care facility rejections.[9] Patients may also face prolonged delays while awaiting insurance approval or Medicaid coverage.[8] Lack of coverage for certain medications, such as parenteral antibiotics[10] and durable medical equipment[11] may lead to further denials of admission from skilled nursing facilities.

Despite observations of the rising trend of complex "nonmedical" barriers to discharge, few studies have systematically examined the contribution of these factors to prolonged stays beyond medical necessity in the United

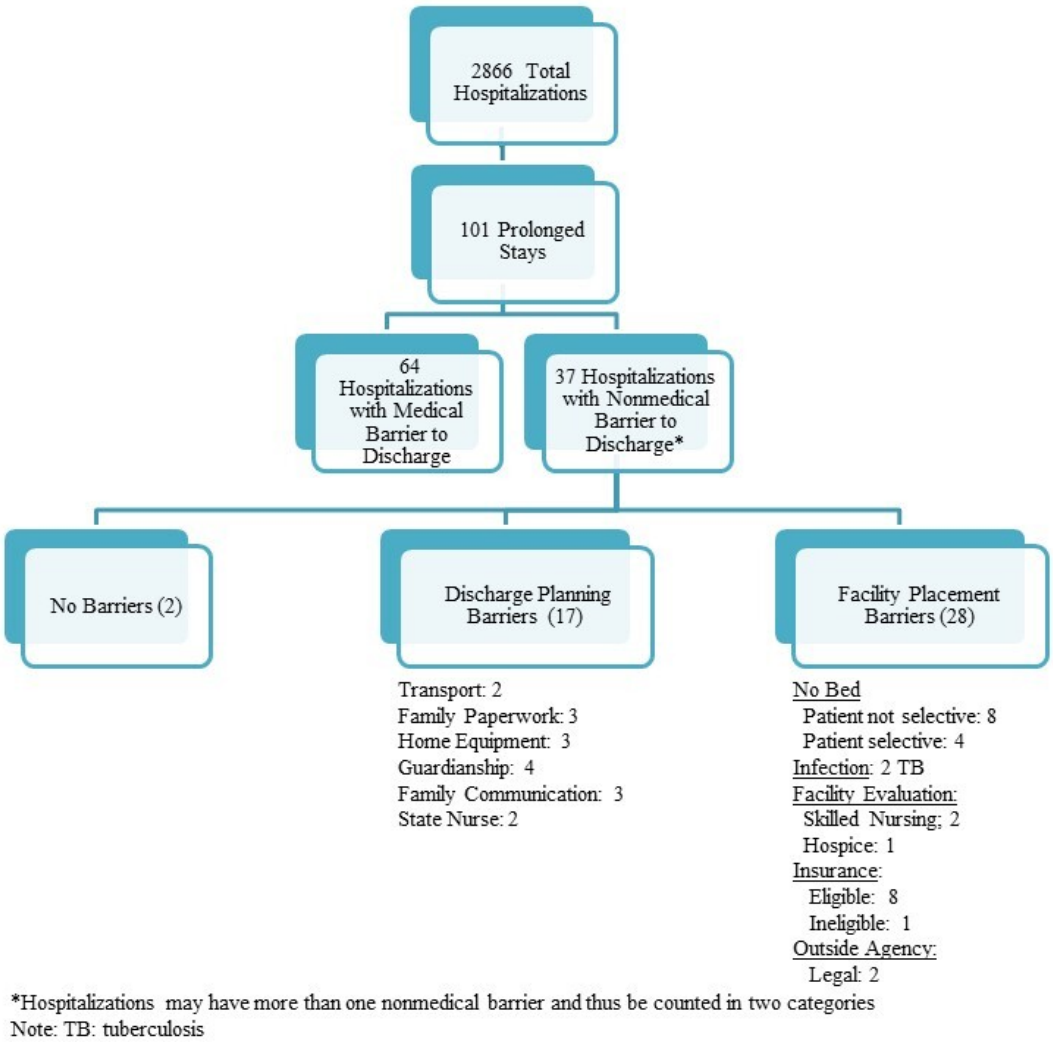

Figure 1. Distribution of Barriers to Discharge at Day 30 of Admission

States. A recent small study limited to homebound prolonged stay patients revealed nonmedical delays in almost half of the sample.[9] Similarly, a study at Stanford Hospital reported nonmedical delays in 46% of prolonged stay patients, with discharge site coordination as a major contributor.[7] One international systematic review consisting of primarily European studies estimated at least 20% of total inpatient days to be medically unnecessary,[12] though specific reasons for delays were not delineated. This study aims to describe in greater detail the nonmedical factors associated with prolonged stays in a general medicine population in an effort to characterize the causes behind prolonged stays beyond medical necessity.

METHODS

Retrospective chart review was conducted for patients admitted January 2018 through December 2019 with prolonged stays who were subsequently discharged from one medicine teaching floor. The hospital under study is a non-profit, urban academic tertiary care center with over 1500 beds in the Northeast caring for patients with complex conditions with or without insurance. Prolonged stays were defined as lengths of stay greater than or equal to 30 days.[4,7] Demographic, clinical, and administrative data were collected for each admission. Barriers to discharge were examined cross-sectionally at 30, 60, and 90 days after admission through review of medical and care coordination documentation. Barriers were identified as "medical" if patients were not yet medically ready for discharge on these days (as judged by the treating clinician), or "nonmedical" if patients were medically ready for discharge but remained inpatient.[13] Further categorization of nonmedical barriers into (1) discharge planning (i.e. awaiting communication with families regarding discharge destination, arranging transportation, etc.) and (2) awaiting placement (i.e. no beds available in post-acute care facility, insurance application for long-term care placement, infection preventing facility acceptance, etc.) occurred, within which specific delays were recorded based on taxonomy of prior studies.[14,15] In situations with more than one nonmedical discharge barrier, several barriers were recorded. Descriptive analyses were conducted summarizing patient and discharge barrier data.

RESULTS

Patient Demographics

Of 2866 hospitalizations in 2018-2019, 101 hospitalizations (3.5%) of 97 patients were found to be prolonged. Prolonged stays accounted for a total of 6518 (27.2%) of 23,934 inpatient days. The median length of stay for this subgroup was 44.4 days (interquartile range: 38.2 days). Demographics and outcomes data for these patients are shown in Table 1.

While the median age of PLOS patients was 63.7 years, individual ages varied greatly. Of the 17 patients staying approximately more than three months in the hospital, for instance, patients had an age range of 33.5 to 80.9 years. Notably, a subset of prolonged stay patients (9.9%) experienced housing insecurity and 8.9% were conserved and lacked capacity on admission. While diagnoses for the admission varied, a history of mental health disorders was seen in approximately four out of ten patients and substance use disorder was seen in 23.8% of the sample. The majority of prolonged stay patients were discharged to a facility for rehabilitation or extended care. Finally, our sample had a mortality rate of 17.8% within 90 days of discharge.

Barriers to Discharge in PLOS

Of 101 prolonged admissions, 37 hospitalizations lasted longer than 60 days, and 17 lasted longer than 90 days. At 30 days after admission, 37 (36.6%) of prolonged stays were due to nonmedical barriers to discharge. By day 60 of the admission, 22 (59.5%) of the remaining 37 stays were due to nonmedical barriers. By day 90, 9 (52.9%) of the continuing 17 admissions faced nonmedical barriers to discharge. Overall, the most common delay for a nonmedical stay at all time points was barriers to post-acute care facility placement, particularly facility rejections. Insurance coverage delays and coordinating family communication regarding disposition were the second most common reasons for nonmedical stays at day 30 and 60 respectively. Awaiting guardianship applications was also a common barrier at all three timepoints. Top barriers to discharge are outlined in Table 2.

Figure 1 further delineates the breakdown of barriers to discharge at day 30 of admission. Of the 37 stays with nonmedical barriers to discharge, 28 stays were prolonged due to difficulties finding a bed in a post-acute care facility. This group included a lack of facility bed offers for patients who were not selective about facility choices (8) and those who were selective about where they would go after discharge (4), unavailability of isolation beds for those with infections (2), delays in obtaining outside facility evaluation of patients (3), a lack of appropriate insurance coverage/approval for post-acute care (9), and delays in outside legal agencies for those needing state or court approval to leave the hospital for facility placement (2).

Table 1. Demographics and Outcomes of Patients with Prolonged Stays on a General Medicine Ward over Two Years

Demographics of 101 Admissions[A]	**N (%)**
Age, median years (IQR)	63.7 (15.5)
Sex	
Male	60 (59.4%)
Female	41 (40.6%)
Race	
White	63 (62.4%)
Black	25 (24.7%)
Other/Unknown	13 (12.9%)
Ethnicity	
Not Hispanic/Latino	90 (89.1%)
Hispanic/Latino	9 (8.9%)
Unknown	2 (2.0%)
Marital status	
Married or with significant other	40 (39.6%)
Single	35 (34.7%)
Divorced, separated, or widowed	26 (25.7%)
Living situation	
Home with support	59 (58.4%)
Extended care facility	17 (16.8%)
Housing insecure	10 (9.9%)
Home alone	10 (9.9%)
Assisted living	5 (5.0%)
Primary payer	
Medicare	40 (39.6%)
Commercial	31 (30.7%)
Medicaid	25 (24.7%)
No insurance	4 (4.0%)
Veterans Affairs	1 (1.0%)
Conserved prior to admission	9 (8.9%)
Hospital primary diagnoses by ICD-10 code[B]	
Acute respiratory failure	8 (7.9%)
Bacteremia	6 (5.9%)
Altered mental status	4 (4.0%)
Acute kidney failure	4 (4.0%)
Pneumonia	4 (4.0%)
Prevalence of history of other diagnoses[C]	
Mental health disorder	41 (40.6%)
Substance use disorder	24 (23.8%)
Discharge destination	
Rehabilitation	46 (45.5%)
Home	20 (19.8%)
Extended care facility	18 (17.8%)
Hospice – inpatient or home	13 (12.9%)
Died in hospital	3 (3.0%)
Hospital	1 (1.0%)
Deceased within 90 days from discharge	18 (17.8%)

NOTE: Abbreviations: ICD-10, International Classification of Diseases, Tenth Revision; IQR, interquartile range. [A]Of 97 unique patients.
[B]Top five diagnoses for patients with prolonged lengths of stay.
[C]History of or current diagnoses by ICD-10 codes from admission.

Table 2. Barriers to Discharge for Prolonged Stay Admissions at 30-day Timepoints

Length of Stay of Timepoint (Days)	Number of Admissions Lasting Past Timepoint (n)	Number of Admissions with Nonmedical Barriers to Discharge at Timepoint (n)	Top 3 Discharge Barriers (n)
Day 30	101	37	1. No Facility Bed Offers (12) 2. Insurance Delay (9) 3. Awaiting Guardianship Application (4)
Day 60	37	22	1. No Facility Bed Offers (10) 2. Awaiting Family Communication (4) 3. Awaiting Guardianship Application (3)
Day 90	17	9	1. No Facility Bed Offers (5) 2. Insurance Delay (3) 3. Awaiting Guardianship Application (2)

In 17 of the 37 hospitalizations with nonmedical barriers to discharge, patients faced barriers in discharge planning. These included guardianship applications (4), communication with families for discharge planning (3), awaiting documentation or paperwork from family members (3), obtaining authorization and arranging for home equipment (3), transportation for discharge (2), and awaiting a state nurse visit to approve home discharge (2). Notably, in ten admissions, patients faced both a delay in discharge planning and a delay in facility placement and thus were counted in both categories above. Finally, in two of the 37 prolonged hospitalizations delayed beyond medical readiness to discharge, no barriers were identified.

DISCUSSION

Prolonged stays beyond medical necessity alter the landscape of acute care medicine, with implications for patients, staff, and the healthcare system in ways hitherto under-recognized in the literature. We aimed to explore the complex discharge barriers in prolonged stays and the contribution of nonmedical factors to these outlier cases. When examining stays above thirty days in one academic teaching ward over a period of two years, we found that a small proportion (3.5%) of prolonged stays made up a large percentage (27.2%) of total inpatient days. This result is consistent with National Inpatient Sample (NIS) data from 2001-2012, demonstrating 2% of admissions in the United States were prolonged, making up 14% of all inpatient days.[2] The higher proportion of total inpatient days attributed to prolonged stays in our dataset may reflect a trend towards more complex barriers to discharge and lengths of stay. This result may also reflect the shifting demographics of urban teaching hospitals, which tends to see a higher proportion of prolonged stay patients than rural or non-teaching centers.[2]

Our findings further highlight the rising prevalence of nonmedical barriers to discharge associated with prolonged stays. Nonmedical barriers contributed to over a third of prolonged stays at 30 days after admission and more than half of cases beyond 60 and 90 days after admission. Notably, the most common nonmedical barrier was lack of facility placement options throughout each time point examined, with insurance playing a key role in both facility placement and discharge planning (i.e. approval for home equipment or transportation). Such barriers are not unique to one institution[7,9,15] and point towards the need to study systems-level inadequacies and nonmedical delays to discharge.

Beyond this trend, our findings suggest that prolonged stay patients may present with specific medical and socioeconomic needs[8] that further restrict their options for post-acute care as compared to other medicine patients. While specific reasons for facility rejections in prolonged stay patients have yet to be described in detail in the literature, both our work and previous data suggest a prevalence of mental health,[16] cognitive impairment,[17] and substance use disorders[16] impacting discharge planning. For instance, patients with behavioral disturbances are known to have few facility options for discharge,[8] particularly with the current shortage of dementia or geropsych units.[11,18] Patients with substance use disorders and/or those needing opioid agonist therapy often face facility rejections and logistical barriers to accessing methadone or buprenorphine.[19-21] Other medically complex needs such as hemodialysis (and transport to and from dialysis sessions),[8,11] isolation due to infection,[8,11] bariatric care,[11,22-25] and traumatic brain injury[11,26] are known to leave patients without facilities willing or able to care for them. In a small proportion of cases, prolonged stay patients may have histories of incarceration and face legal delays and limits on facilities willing to accept them.[11,27] Additional supports in transitions of care for these vulnerable populations may help address prolonged stays.

Guardianship applications made up another prominent reason for prolonged stays as the third most com-

mon barrier at all three timepoints. Court-appointed guardianship, or conservatorship, application for patients lacking capacity and without surrogate decision-makers can take well over a month, during which patients often remain inpatient.[8,11,28,29] At one center, patients awaiting conservatorship had an average stay of 27.8 excess days beyond medical necessity, with daily estimated charges of $4,700 per patient.[30] As such, reconsideration of the efficiency of the guardianship process for patients may lead to a substantial reduction in both delays to discharge and its associated costs.

Our results are limited by retrospective review of cross-sectional reports of barriers from the electronic medical record.[31] Our results were also obtained for a two-year period prior to the COVID-19 pandemic, after which lengths of stay and barriers to discharge likely changed due to increased shortages in acute-care facility beds and infection prevention protocols.[32,33] Moreover, our work represents admissions to one teaching ward in adult medicine and cannot be generalized to specialty services, pediatrics, or non-teaching floors in other regions.

CONCLUSIONS

A small group of prolonged stay patients make up a disproportionately high number of inpatient days on the general medicine wards. Nonmedical barriers to discharge play an important role in prolonged stays beyond medical necessity in general medicine. Post-acute care facility rejections, insurance delays, and guardianship applications contribute to long stays, creating significant downstream effects on inpatient bed shortages and rising healthcare expenditures.[9] As a response, individual institutions are implementing local interventions, including pathways streamlining guardianship processes,[30] complex discharge committees,[7,25] and systems to identify patients at risk for prolonged stays.[34] These efforts, combined with rising numbers of patients with more complex care needs, represent a concerning shift in patient demographics within hospital systems originally designed for acute care. How this population impacts healthcare systems and what additional infrastructure needs to be implemented to support this high-risk population requires further study.

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Disclosures/Conflicts of Interest

The authors declare they have no conflicts of interest

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